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The Within-Nation Distribution of Public Expenditures and Services
A Two-Nation Analysis

by

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Introduction

Recent conceptual work on the study of comparative politics and political development has focused on the examination of governmental "performance" or "effectiveness." Macridis has suggested that "the central focus of politics, therefore, and of the study of comparative politics is ... the governmental institutions and political elites, their role, their levels of performance and nonperformance."[1] Others have noted the importance of such issues for future research,[2] while the notions of political performance and regime effectiveness have been further developed in extensive treatments by several scholars.[3]

A primary aspect of the performance of governments is the manner in which they distribute valued resources within their societies. The centrality of this element of governmental performance is underscored by its similarity to Easton's influential definition of the function of the political system --- "the authoritative allocation of values."[4] The importance of this aspect of politics is

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[1] Roy C. Macridis, "Comparative Politics and the Study of Government: The Search for Focus," Comparative Politics, I (October, 1968), 89.

[2] Gabriel A. Almond, "Political Development: Analytic and Normative Perspectives," Comparative Politics, I (January, 1969), 447-470.

[3] See Harry Eckstein, The Evaluation of Political Performance: Problems and Dimensions (Beverly Hills, California: Sage Professional Papers in Comparative Politics, 1971); Ted Robert Gurr and Muriel McClelland, Political Performance: A Twelve-Nation Study (Beverly Hills, California: Sage Professional Papers in Comparative Politics, 1971); and several of the essays in Leonard Binder, et. al.,Crises and Sequences in Political Development (Princeton: Princeton University Press, 1971); and Karl W. Deutsch, Politics and Government (Boston: Houghton Mifflin Co., 1974), esp. 228-258.

[4] David Easton, A Systems Analysis of Political Life (New York: John Wiley, 1965), pp. 130ff.

suggested, as well, by Lasswell's famous titular query, Who Gets What, When, How?[1] Thus, we can generate important criteria for the evaluation of political systems based on the manner in which they distribute resources.[2]

The specific concern of this paper is with governmental expenditures and services in major human resource development policy areas. We examine the within-nation distributions of such variables for education and public health in two countries, Turkey and West Malaysia, in order to assess some aspects of distributional research more generally. In effect, our concern is with inequalities of public allocations.[3] Two interpretive traditions underlie this concern. One perspective on such issues is that existing political allocations mirror the relative distribution of power in a society.[4] Thus an empirical assessment of resource allocations should provide information on the effective power centers of a society. The second perspective, focusing on policy effectiveness, suggests that different distributions of resources have different implications for the effective resolution of societal problems. Areas or groups that are relatively disadvantaged in the distribution of public expenditures and services should also be disadvantaged in terms of problem resolution. We then have two different and prominent concerns of political analysis for which our research is central. In the discussion of our empirical results, an effort is made to relate our findings to both of these areas.

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[1]Harold Lasswell, Politics: Who Gets What, When, How? (New York: World Publishing Company, 1958).

[2]For more comments on the relevance of resource distributions for politics, see Robert A. Dahl, Modern Political Analysis (Englewood Cliffs, New Jersey: Prentice-Hall, 1963), esp. 14-39; and Jean Blondel, Comparing Political Systems (New York: Praeger, 1972), pp. 35-37.

[3]The research presented here is very similar in intent to the growing study of the distribution of public services in American cities. For an insightful discussion of some of the research issues in this area, see Robert L. Lineberry and Robert E. Welch, Jr., "Who Gets What: Measuring the Distribution of Urban Public Services," Social Science Quarterly, LIV (March, 1974), 700-712.

[4]On this view see Lasswell, op. cit.; Dahl, op. cit.; and Tord Hoivik, "Social Inequality --- The Main Issues," Journal of Peace Research, VIII (1971), 134.

Hypotheses about Policy Distributions

Despite the importance of distributional aspects of public expenditures and services, little empirical analysis has examined such relationships in a comprehensive manner. Observers of policy processes in developing nations have noted that policy resources are often skewed toward more developed areas in such contries.[1] Similar conclusions are supported by Sharpston's[2] examination of health services in Ghana and Hoivik's[3] analysis of services in a variety of policy areas for Mexico. However, no previous studies examine both expenditures and services in a comprehensive manner. For the purposes of this study we will accept as a working hypothesis that public policy effort will be greater in more developed regions of our two countries. We are interested in assessing the accuracy of this hypothesis in an empirical and comprehensive analysis.

The Data and Research Design

The data utilized in this study are for central government expenditures and services in health and education for Turkey and West Malaysia.[4] While the

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[1]For comments of this type in regard to educational resources, see Adam Curle, Educational Problems of Developing Societies (New York: Praeger, 1969); and Don Adams and Robert M. Bjork, Education in Developing Areas (New York: David McKay, 1969), esp. pp. 123-139.

[2]M.J. Sharpston, "Uneven Geographical Distribution of Medical Care: A Ghanaian Case Study," Journal of Development Studies, VIII (January, 1972), 205-222.

[3]Hoivik, op. cit.

[4]In education we will be dealing only with the primary and secondary levels. In health a variety of service measures are employed for both physical and personnel facilities. In both countries the bulk of physical capacity is provided by the public sector. Also, both governments employ significant portions of all health personnel. For example, in Malaysia about one-third of all doctors are fully employed and one-third partially employed in the public service. Likewise, both governments are actively stimulating the production of new doctors and other health professionals. On these and related points see (for Turkey) Nusret H. Fisek, "Health Planning in Turkey as an Exmple for Planning in Developing Countries," Annales des Societes belges de Medecine tropicale, XLVIII (1968), 381-392; and (for Malaysia) the Fourth Report on the World Health Situation, 1965-68 (Geneva: World Health Organization, 1971), pp. 375-377.

administrative systems of these two nations are nominally different (Turkey having a strong unitary administrative system and Malaysia a federal one), the central governments of both nations monopolize the public provision of services in such areas as education and health. The data employed here will be aggregated for the major administrative units in each country --- the eleven states of Malaysia and the sixty-seven provinces of Turkey. An ecological analysis at these levels is especially appropriate since both governments recognize such units as important budgetary entities.

For both countries we have developed appropriate per capita measures for total public expenditures in the two policy areas: total education expenditures/total students and total health expenditures/total population. Similarly, we have generated a variety of indicators of the level of service provided within the individual units of analysis. These indicators generally measure the physical character of services, such as indexed by appropriate ratios of teachers, schools, classes and students in education and doctors, nurses, hospitals and health units in public health. The data were gathered from a variety of sources within both nations --- principally from published and unpublished materials of the relevant government ministries and the central governmental statistical offices.[1] The data are generally for 1970 with a few exceptions where data from a preceding year are employed for completeness.

Given our concern with distributions, the analysis will encompass three stages. First, we examine the general variation of expenditures and services within each nation as assessed by coefficients of variation.[2] Such coefficients are measures of relative variability that are comparable across variables, the effect of different measurement units having been eliminated. Thus, these coefficients indicate the general uniformity or variability of individual variables. Second, we assess the extent to which expenditures and services are skewed toward areas with particular contextual traits. For this purpose expenditure and service levels are correlated with selected contextual measures.

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[1]For more details on the specific variables, their sources and operational definitions, see Kim Quaile Hill, "Distributional and Impact Analysis of Public Policy: A Two Nation Study for Health and Education Policy," unpublished Ph.D dissertation, Rice University, 1974.

[2]For more material on this and other statistics for examining distributional issues, see Haywood R. Alker, Jr. and Bruce M. Russett, "Indices for Comparing Inequality," in Richard L. Merritt and Stein Rokkan (eds.), Comparing Nations (New Haven: Yale University Press, 1966), pp. 349-381.

High levels of association would indicate skews of policy measures along the particular contextual dimensions. Finally, in order to provide summary indications of the relatedness of policy measures to contextual characteristics, indices of the level of development of the units of analysis are generated and employed as predictors to policy measure in regression analysis.

Analysis and Results

In Tables 1 and 2 we present the mean, standard deviation, and coefficient of variation for each of the policy measures for Turkey and Malaysia, respectively. Examination of these tables reveals a number of generalizations. First, within each policy area there is more variation across the units of analysis for service measures than for expenditure measures. That is, the coefficients of variation for the individual service variables are generally larger than the coefficient for the expenditure variable in that policy area.

This implies that expenditures are distributed more uniformly than are service characteristics. Second, it is apparent that within both countries educational services and expenditures are more uniformly distributed than are health services and expenditures. In general, administrative norms and necessities should account for the more uniform results for educational variables in both countries. By necessity schools must be accessible to their client populations. For health services certain kinds of institutions are seen as substitutes for one another. If complete hospitals cannot be provided to rural areas, health centers often can be. The former may be skewed toward urban areas and the latter toward rural areas. To a certain extent there is a compensation effect; yet, there are also clear differences in the service capabilities of the two kinds of institutions.

Apparently, the administrative systems of both these nations operate so as to achieve near uniform per-capita distributions of expenditures for health and education and for these units of analysis. In other words, the average expenditure level is a fairly good estimate of all the state or province expenditure levels. However, the distributions of service characteristics are less uniform. Their coefficients of variation are larger and reflect more dispersion from the average value than do the coefficients for expenditures. It should be clear then that some areas have relatively high service levels and some other areas have relatively low service levels.

TABLE 1

Distributional Statistics for Turkish Education and Health Expenditures and Services

Variable	$\bar{X}$	S.D.	C.V.
Educ. expend./std.	430.00	91.00	.212
City[a] prim. pup.-teacher ratio	37.27	3.98	.106
Vill[a] prim. pup.-teacher ratio	39.20	4.47	.114
Orta[b] pup.-teacher ratio	79.23	27.55	.348
Lise[c] pup.-teacher ratio	21.15	9.69	.458
City prim. sch. size	445.90	137.35	.308
Vill. prim. sch. size	93.56	29.62	.317
Orta sch. size	433.07	161.26	.372
Lise sch. size	528.37	266.53	.504
City prim. class size	61.14	13.62	.223
Vill. prim. class size	46.69	7.69	.165
Avg. secon. tchr. salary	6,094.61	2,874.24	.179
Admin. sal./std.	42.97	17.76	.413
Admin. expend./std.	24.66	27.04	1.096
Vill. without schools	12.93	13.46	1.041
Hlt. expend./cap.	17.00	7.00	.412
Hosp./10,000 pop.	.10	.04	.427
Hosp. beds/100,000 pop.	146.14	99.48	.681
Pharmacies/10,000 pop.	.46	.35	.760
Infirm./10,000 pop.	.02	.03	1.566
Hlt. cent./10,000 pop.	.10	.07	.723
Doctors/10,000 pop.	.81	.94	1.172
Specialists/10,000 pop.	1.19	1.80	1.516
Dentists/10,000 pop.	.51	.73	1.438
Nurses/10,000 pop.	1.82	1.24	.685
Pharmacists/10,000 pop.	.51	.48	.923
Midwives/10,000 pop.	3.12	.93	.298
Hlt. officials/10,000 pop.	2.31	1.14	.494

[a]Primary schools are subclassified in Turkish educational statistics as "city" or "village" depending on the population size at the location of the school.

[b]Equivalent to junior high schools.

[c]Equivalent to high schools.

TABLE 2

Distributional Statistics for Malaysian Education and Health Expenditures and Services

Variable	$\bar{X}$	S.D.	C.V.
Educ. Expend./std.	166.28	10.00	.060
Prim. pup-teacher ratio	30.84	1.98	.064
Sec. pup-teacher ratio	24.77	1.88	.076
Prim. Sch. size	325.30	75.20	.231
Second. sch. size	620.75	169.61	.273
Prim. class size	34.20	3.46	.101
Second. class size	34.60	3.56	.103
Hlt. Expend./cap.	14.32	3.56	.249
Hosp./10,000 pop.	.06	.03	.464
Hosp. beds/10,000 pop.	21.57	8.27	.383
Dispen./10,000 pop.	.74	.23	.304
Hlt. cent./10,000 pop.	.06	.03	.435
Subcent./10,000 pop.	.27	.12	.437
Midwife clinic/10,000 pop.	1.37	.59	.433
Doctors/10,000 pop.	2.28	1.58	.690
Dentists/10,000 pop.	.70	.23	.337
Ast. Nurses/10,000 pop.	3.18	1.65	.520
Midwives/10,000 pop.	3.80	1.64	.431

The second aspect of distribution, whether services and expenditures are skewed toward areas with particular contextual traits, is assessed with the correlation results in Table 3 for Malaysia and Table 4 for Turkey.[1] Examination of the correlations suggests some interesting generalizations. For both countries there is evidence that supports our hypothesis about the presumed skew of public services toward better developed areas. In Malaysia most of the service measures have moderately high correlations with percentage of the population Chinese and moderately high negative correlations with percentage Malay. Since the Chinese population is heavily concentrated in urban areas and the Malay in rural areas, we can conclude that states with higher percentage Chinese populations (more urbanized states) tend to have higher levels of education and health service. However, some interesting exceptions should be noted.

The positive associations between most of the education services and the contextual variables indicate, in fact, that more urbanized states have larger schools (in terms of enrollment), larger class sizes, and less favorable pupil-teacher ratios. The latter two relationships are contrary to our expectations about the skew of such services, and we will comment further on these findings below. The other notable exceptions to the urban skew of services are health centers, health subcenters, dispensaries and midwife clinics. These facilities are components of the rural health service network, and are partial substitutes for higher capability service units such as hospitals. These facilities are skewed toward rural areas, but they are relatively poor indicators of level of service. The more valid health service measures --- for hospital-related and personnel services --- are skewed toward more urbanized areas.

Unlike the service measures, the Malaysian expenditure variables are only weakly associated with any of the contextual traits. Per capita education expenditures are slightly higher in rural areas and health expenditures are somewhat higher in urban areas.

The Turkish correlations in Table 4 suggest some basic similarities with the Malay results; however, the Turkish figures are not so dramatic given the absence

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[1]We have chosen a few of the more interesting available contextual attributes for presentation in Tables 3 and 4. The utility of employing many more such measures is diminished by the absence of a theoretical interpretation for exactly what most such variables are measuring and by the high multicollinearity among some of the variables. We will deal with both of these problems at a later point in the analysis.

TABLE 3

Correlations of Malaysian Expenditure and Service Measures with Contextual Variables

Policy Measure	Percent Population Malay	Percent Population Chinese	Percent Workers in Manufacturing	Percent Workers in Agriculture
Educ. Exp./Student	.30	-.21	-.51	.46
Primary Pupil-Tchr. Ratio	-.76	.71	.76	-.80
Second. Pupil-Tchr. Ratio	-.33	.31	.57	-.59
Primary Class Size	-.74	.69	.49	-.41
Second. Class Size	-.54	.53	.56	-.30
Primary School Size	-.60	.58	.56	-.22
Second. School Size	-.51	.55	.78	-.62
Health Exp./cap.	-.47	.47	-.21	-.23
Doctors/10,000 pop.	-.82	.76	.72	-.61
Dentists/10,000 pop.	-.83	.84	.53	-.63
Ast. Nurses/10,000 pop.	-.08	.10	-.54	.03
Midwives/10,000 pop.	-.15	.24	-.38	-.24
Hosp./10,000 pop.	-.47	.46	-.30	-.12
Hosp. beds/10,000 pop.	-.43	.39	-.35	-.30
Hlt. Cntrs./10,000 pop.	.56	-.52	-.16	.47
Subcentrs./10,000 pop.	.54	-.52	-.68	.58
Dispen./10,000 pop.	.42	-.35	-.62	.30
M.W. Clinics/10,000 pop.	.44	-.38	-.65	.46

Table 4

Correlations of Turkish Expenditure and Service Measures with Contextual Variables

Policy Measure	Percent Population in "Urban Areas"	Population Density	Percent Workers in Manufacturing	Percent Workers in Agriculture
Educ. Expend./std.	.04	-.16	.00	.06
Vill. Prim. Pup-tchr. Ratio	-.32	.00	-.21	.38
City Prim. Pup-tchr. Ratio	.41	.26	.36	-.28
Orta Pup-tchr. Ratio	.02	.02	-.06	.02
Lise Pup-tchr. Ratio	.21	.07	.11	-.19
Vill. Prim. Avg. Class Size	-.04	.21	.02	.04
City Prim. Avg. Class Size	.54	.24	.35	-.37
Vill. Prim. School Size	.25	.61	.51	-.26
City Prim. School Size	.78	.46	.60	-.57
Orta School Size	.56	.37	.42	-.49
Lise School Size	.48	.23	.35	-.44
Percent Vill. Without School	-.20	-.22	-.40	-.21
Avg. Second. Tchr. Salary	.54	.51	.58	-.42
Admin. Salary/Second. Std.	-.19	-.13	-.18	.17
Admin. Expend./Second. Std.	.00	-.10	-.17	.11
Health Expend./capita	-.18	-.32	-.35	-.04
General Pract./10,000 pop.	.66	.66	.64	-.52
Med. Specialists/10,000 pop.	.79	.74	.79	-.64
Dentists/10,000 pop.	.68	.73	.76	-.61
Nurses/10,000 pop.	.71	.44	.61	-.55
Midwives/10,000 pop.	.17	.02	.12	-.17
Pharmacists/10,000 pop.	.80	.83	.88	-.68
Health officials/10,000 pop.	.60	.33	.46	-.46
Hospitals/10,000 pop.	.22	.02	.11	-.41
Hosp. beds/100,000 pop.	.62	.51	.60	-.73
Pharmacies/10,000 pop.	.76	.84	.89	-.68
Hlt. Centers/10,000 pop.	-.24	-.17	-.08	.20
Infirmaries/10,000 pop.	-.30	-.07	-.09	.19

of a contextual variable as politically salient as communal origin in Malaysia. A variety of service measures in both policy areas have high positive associations with urban, high density, manufacturing-employed populations. The principal health service measures (for doctors, dentists, nurses, hospitals, hospital beds, and pharmacies) are highly skewed toward urban areas. As in Malaysia, components of the rural health system (health centers and infirmaries) are skewed toward more ruralized provinces. However, the education service relationships are not so directly interpretable. Some of the variables (for school sizes, class sizes, average teacher salaries, and the percentage of villages without schools) indicate better services in more urban, modernized areas. But the strength of some of these relationships is weak, indicating that the skews are slight. Likewise, a few of the other service variables do not indicate the same distribution pattern. Some of the pupil-teacher ratio, class size, and expenditure measures indicate skews toward ruralized provinces. In general, the distribution of Turkish education services does not appear systematically interpretable from these results.

On the other hand, the associations between expenditures and contextualities are more straightforward. Educational expenditures are almost perfectly unassociated with any of the contextual measures. Health expenditures have slight negative associations with population density and workers in manufacturing; yet, neither of these variables explains as much as fifteen percent of the variation in per capita health expenditures.

Studying the association of expenditures and services with specific contextual variables provides useful information about very specific questions about within-nation variation of these policy attributes. In some cases questions of substantive policy concern may be best addressed in that fashion.

However, this approach is less useful for a general, theoretical assessment of within-nation distributions. There is a diversity of possible contextual attributes which one could employ and the most meaningful ones may be difficult to choose. In Malaysia the communal character of the population is the most important contextual dimension; however, the most salient cleavage for Turkish society is not as clear. The usefulness of individual contextual indicators is limited, as well, unless one knows the theoretical dimension which they index. Without such knowledge it is difficult to interpret the analytic results in a meaningful fashion. One does not know, for example, whether variables such as "employment in manufacturing" and "urbanness" are necessarily indicating a common dimension like level of development. In effect, one requires a smaller number of substantively interpretable contextual dimensions to facilitate the analysis. Similarly, the high level of intercorrelation among some of the contextual measures themselves suggests they may have little distinctive meaning and argues for the utility of a smaller number of contextual indices.

Given the preceding arguments, we explored the construction of a smaller number of contextual indices from large sets of individual contextual variables. Factor analytic techniques were employed to examine the dimensionality of the sets of variables, and in both nations the results were highly satisfactory. For both countries the majority of the individual variables loaded together on a single principal component which could be interpreted as a "Level of Development" dimension. These subsets of the contextual variables were then refactored separately from the remainder and factor scores for the single factored solutions were derived. The latter scores comprise the values for new "Level

of Development" indices for both countries.[1]

Employing these Level of Development indices, we can now examine a more refined aspect of within-nation distributions. With the use of regression techniques we can ask: (1) knowing the level of development scores, how predictable are service and expenditure levels? and (2) how much change in service or expenditure is associated with a change on the level of development indices? In order to examine these issues all the service and expenditure measures were regressed on the level of development indices. We present in Tables 5 and 6 all of the expenditure measure regressions and all of the service measure regressions where at least twenty percent of the dependent variable's variation is explained by the development index. In all but one issue area --- education in Turkey --- the majority of our service variables meet this minimum criterion for presentation.

In every issue area the per capita expenditure measure is very poorly predicted by the development index. The explained variation in these cases is very low (never more than fifteen percent) and the regression coefficients are very small relative to their standard errors. Compared to the service measures in the same policy area, or even to the service regressions in other policy areas, the expenditure levels are poorly predicted on the basis of within-nation development.

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[1]The factor analytic program utilized in this research was that included in the DATATEXT software system. Principal component solutions were derived from the variable intercorrelation matrices altered by the use of highest column correlations in the diagonal. This figure represents a conservative estimate of the common variance for each variable. In the initial factor extractions an eigenvalue cut-off of 1.0 was employed; however, the virtual single-factoredness of the original data sets made decisions about the correct number of factors to extract no difficulty. The Variable composition of the Level of Development Indices is given in the Appendix.

Table 5

Regressions of Turkish Expenditure and Service Measures
On the Level of Development Index

Policy Measure	Coefficient	Std. Error of Coefficient	Standardized Coefficient	r	r^2
Educ. Expend./Std.	0.002	0.011	0.024	.02	.00
Avg. Second. Tchr. Sal.	1629.465	250.452	0.628	.63	.39
City Prim. School Size	85.177	12.873	0.634	.63	.40
Vill. Prim. School Size	12.968	3.211	0.448	.45	.20
Orta School Size	69.053	17.577	0.438	.44	.19
Health Expend./Capita	-0.002	0.001	-0.274	-.27	.08
General Pract./10,000 pop.	7.656	0.637	0.830	.83	.69
Med. Spec./10,000 pop.	16.257	0.838	0.923	.92	.85
Dentists/10,000 pop.	5.901	0.497	0.827	.83	.68
Nurses/10,000 pop.	9.167	0.990	0.754	.75	.57
Hlt. Officials/10,000 pop.	7.029	1.070	0.632	.63	.40
Hosp. Beds/10,000 pop.	648.325	89.897	0.667	.67	.44
Pharmacies/10,000 pop.	0.310	0.019	0.900	.90	.81
Pharmacists/10,000 pop.	0.446	0.020	0.942	.94	.89

Table 6

Regressions of Malaysian Expenditure and Service Measures
On the Level of Development Index

Policy Measure	Coefficient	Std. Error of Coefficient	Standardized Coefficient	r	r^2	$\bar{r}^2$
Educ. Expend./Std.	-3.867	3.052	-0.389	-.39	.15	.06
Prim. Pup.-Tchr. Ratio	1.682	0.399	0.856	.86	.73	.70
Prim. Avg. Class Size	2.810	0.661	0.817	.82	.67	.63
Second. Avg. Class Size	2.063	0.960	0.582	.58	.34	.27
Prim. School Size	51.085	18.198	0.683	.68	.47	.41
Second. School Size	102.309	44.688	0.607	.61	.37	.30
Health Expend./Capita	1.367	1.089	0.386	.39	.15	.06
Doctors/10,000 pop.	1.514	0.135	0.966	.97	.93	.92
Dentists/10,000 pop.	0.209	0.034	0.898	.90	.81	.79
Hlth. Cntrs./10,000 pop.	-0.014	0.008	-0.529	-.53	.28	.20
Subcenters/10,000 pop.	-0.069	0.032	-0.584	-.58	.34	.27
Dispensaries/10,000 pop.	-0.123	0.062	-0.551	-.55	.30	.22
Midwif. Clin./10,000 pop.	-0.306	0.168	-0.518	-.52	.27	.19

$\bar{r}^2$ is a corrected coefficient of determination adjusting for the small number of observations in the Malaysian data. For the formula for this statistic and its rationale, see Quinn McNemar, Psychological Statistics (New York: John Wiley, 1962), p.184.

On the other hand, many of the service characteristics are well predicted in these regressions. More developed areas in both nations tend to have larger schools with larger classes and larger pupil-teacher ratios. Likewise, more modern areas have larger numbers of medical personnel and of health facilities. The only significant exceptions to this generalization are some of the small-scale health units discussed earlier, which are skewed toward rural areas.[1]

In summary, we have found that expenditure levels are very uniform across administrative units within these two countries. Furthermore, little of the variation that exists in these measures is associated with specific contextual measures or with generalized indices of the development or modernization of particular administrative units. On the other hand, the bulk of the service measures in both nations are highly variable and are skewed along the level of development dimension. However, the meaning of these findings may not be directly ascertainable for the conceptual issues which underlie such distributional analysis.

Comments

Our analytic findings suggest that distributional assessments may become very complex when examined empirically. For example, we cannot conclude that policy resources in these two countries are systematically biased or systematically equitable. Clearly, expenditures and services are distributed

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[1]It is worth noting that the scatterplots for the regressions of all the individual service measures on the Level of Development indices were visually examined. None of the scatterplots revealed curvilinear relationships or unusually clustered plots. Similarly, the residuals for the regressions in Tables 5 and 6 were examined for evidence of systematic over- or under-prediction of the service levels of particular units of analysis. Little in the way of systematic inference would be made from the patterns of the residuals. The only notable exception was the general underprediction of the scores for Ankara province in Turkey on the health service measures. Ankara is the site of a large medical complex, and thus would have unusually high scores on health service variables.

differently, even though services are not all skewed in the same direction. The finding of uniform per capita expenditures in these two countries is especially noteworthy given our hypothesis that policy resources would be skewed toward more modernized areas. However, it is likely that uniform per capita expenditures are fairly recent phenomena in these two nations. If such is the case, then current distributions of services may reflect previous distributions of expenditures. It is also the case that there may be economies of scale associated with the expenditure of different levels of money (or with the productive capacity of different levels of services). If such scale relationships exist, then equal distributions may not be equitable in a normative sense.

The service distributions are somewhat more difficult to assess. Clearly, health services were often highly skewed as our hypothesis suggested for both nations. More developed areas receive far better levels of health service. Similarly, some of the education service variables are skewed toward better developed areas. However, some of our education service findings are either contrary to our hypothesis or contrary to our preconception of how they measure service variations. It may be that the contrary results for pupil-teacher ratios and class sizes reflect the larger <u>scale</u> of service facilities in urban areas and, in fact, support the contention of better services there. However, the certain reconciliation of this issue can come only with the analysis of more refined data on the quality and quantity of services provided within these nations.

In conclusion, we suggest that distributional assessments may often produce information of uncertain import for many of the inferences scholars wish to draw. For example, if we could determine whether expenditure levels or service levels were more "important," we could then make inferences about the dispersion of power in these societies. We prefer to interpret service measures as more important guides to "who gets what" in these policy areas. Yet, our

finding of uniform expenditures suggests that the distribution of service levels may be undergoing equalizing changes, also. Second, we need to make distinctions among policy issue areas, since services may not be distributed similarly for a variety of policy areas. The differences for health and education service distributions in the present research illustrate this point. Finally, our results suggest one other important criterion for future studies of service distributions. Public services may be seen as goods in themselves, but they are also the vehicles by which so-called "policy outcomes" are determined. With information on the relationships between specific kinds of services and their effects on outcome levels, one could better evaluate objective service distributions for their implications for normative concerns. This is the particular research direction which we believe to be most rewarding for distributional research; that is, the evaluation of service characteristics in terms of their influence on outcome levels.

Appendix

Factor Structures of the Level of Development Indices

Malaysia

Pct. of population with no schooling	-.706
Pct. of population primary graduates	.885
Pct. of population lower secondary graduates	.967
Pct. of population upper secondary graduates	.943
Pct. of population Sixth Form graduates	.827
Pct. workers in agriculture	-.743
Pct. workers in utilities	.940
Pct. workers in commerce	.804
Pct. workers in transportation	.795
Pct. population Malay	-.918
Pct. population Chinese	.875
Pct. population Indian	.869
(Pct. of total variance explained --- 82.6%)	

Turkey

Pct. workers in manufacturing	.906
Pct. workers in construction	.884
Pct. workers in services	.873
Pct. population in "urban" areas	.815
Pct. population lise (high school) graduates	.728
Population density	.787
(Pct. of total variance explained --- 88.9%)	

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